Communications

THE BACK-TO-NATURE MOVEMENT: ALTERNATIVE TECHNOLOGIES AND THE INVERSION OF REALITY

To the Editor:

In his delightful book, *A Choice of Catastrophes,* Isaac Asimov traces the etymology of the word "catastrophe" to the Greek word meaning to turn upside down.[1] There is irony here, since many of our contemporary catastrophists have turned reality upside down in their predictions of cataclysms that have yet to occur. Because of modern science and technology we live longer, healthier lives, yet somehow alternate-technology enthusiasts characterize these as death-dealing systems. John Bryant, in his thoughtful piece, "Systems Theory, Survival, and the Back-to-Nature Movement" (*Technology and Culture* 21 [April 1980]: 227–30), is guilty of this topsy-turvy thinking that is characteristic of the movement he defends.

From the first paragraph to the last, Bryant keeps talking about nature and natural phenomena such as natural food or the natural functions of the land. Taken literally, such pronouncements are nonsense. Humans have always been tool users, and this in itself gives us a different role in the scheme of things. Malcolm Slesser writes: "The productivity of a natural eco-system is around 6 kg. per hectare per year of protein suitable for humans, and this is only obtainable from the better land on the earth's surface. Conceivably, such an unintensified system might support around two hundred million people, a figure surpassed by the Middle Ages."[2] Long before the Middle Ages, of course, humans were transforming the earth through agriculture and husbandry. As René Dubos has noted, "Human beings have probably never been in real 'balance' with their environment except under conditions where population density is extremely thin, as in polar regions or the Australian desert."[3] We don't live in a

[1]Isaac Asimov, *A Choice of Catastrophes* (New York, 1979), p. 13.

[2]Malcolm Slesser, "Energy Requirements of Agriculture," in *Food, Agriculture and the Environment,* ed. John Lenihan and William W. Fletcher (New York, 1976), p. 1.

[3]René Dubos, *The Wooing of Earth* (New York, 1980), p. 57.

natural environment, and, with over 4 billion people on earth, we cannot recreate one.

Obviously, Bryant does not mean a *literal* "return to nature," though one wonders why he continues to use the phrase. All technologies—modern, alternate, or whatever—involve humans living in an artificial environment. It is not the naturalness that is important but the quality and sustainability of the life processes that can be carried out.

Bryant places great emphasis on the "redundancy" of simpler technological systems and the security that this confers. He begins by addressing the theoretical relationship between complexity and reliability and then illustrates with reference to the U.S. bombing of North Vietnam and the statement that the "malfunctioning of some relatively small part of the system . . . can produce severe disruptions in the entire system" (p. 229). Such disruptions include power outages. Twice in over a decade the lights have gone out in New York City, and critics point to the vulnerability of modern technology. Presumably, they take for granted the reliability of electrical systems that work for years with only occasional disruptions. What would Bryant have us compare our electrical systems to for reliability—candles?

When it comes to the basic "life-support system" of which Bryant speaks, it is clear that modern technology has created a redundancy never before achieved. Basic to life support is the provision of food. Modern technology has regularized and stabilized food production, and this has been a factor in the steadily declining death rates that have accompanied the rise and spread of modern technology. Despite stabilization of output, the major variable for agriculture remains the weather. An agricultural system that is essentially worldwide provides greater security against the vagaries of weather through greater redundancy. Our modern transportation and distribution systems provide the means to alleviate severe need, the result being that "only a tenth as many people died of famine in the third quarter of the 20th century as in the last quarter of the 19th century, despite the much larger population now."[4]

Redundancy is at the very heart of modern technology. Hospitals have backup systems. Planes can fly even with loss of an engine, or two. Bridges are built with overload factors. And on it goes. If backup systems fail in a hospital, the disruption can be severe and lives can be lost. But the severity of the disruption is a function of our temporary inability to derive the full benefit of a technology. If the technology

[4]Julian L. Simon, "Resources, Population, Environment: An Oversupply of False Bad News," *Science* 208 (June 27, 1980): 1433.

were not inherently beneficial, its loss would be inconsequential. As we continually reiterate in our arguments with the small-is-beautiful enthusiasts, the aggregate evidence of mortality attests to the redundancy (i.e., safety) of modern technology. With the spread of modern technology, death rates are falling almost everywhere. The very success of technology in protecting and sustaining life leads people like Bryant to perceive a need "to prevent the breeding of human beings who must have such technology to survive" (p. 229).

The human endeavor has always been subject to "severe disruption" by natural hazards such as earthquakes, floods, drought, and winds. But even here, technology provides protection. In a seminal study of natural disaster, Judith Dworkin found that, with the exception of Japan, low death rates from disaster prevailed among high-income countries.[5] Robert W. Kates argues that "death rates from natural hazards in the United States may be down to the reasonably preventable annual minimum."[6] Kates cites the standard figures on mortality from natural disasters: one in a million in the United States, one in a hundred thousand in the world, one in ten thousand in Bangladesh.[7]

It is true that most of the authors who write about risks of natural disasters also write of technological hazards. One such hazard stems from a willingness people have to live downstream from dams or in coastal areas subject to hurricanes. Our dams are so safe (not only in construction but also because of electronic sensing devices), and our hurricane-warning systems are so effective, that some of us have been lulled into a false sense of security. But a developing country could in fact choose modern technology while simultaneously planning its settlement patterns to avoid risks. In already developed countries, undertaking resettlement would be costly. Technological hazards can be minimized by exercising common sense; natural hazards can be reduced primarily with modern technology. When we look at death rates from all causes, it is undeniable that modern technology has yielded a longer life expectancy.

By having tamed nature in developed countries, modern technology has created the framework for the life-styles that win the plaudits of Bryant. Natural or organically grown food is not a prestige item in

[5] Judith Dworkin, "Global Trends in Natural Disasters, 1947–1973," Natural Hazard Working Paper no. 26 (Boulder: University of Colorado, Institute of Behavioral Science, 1974), p. 5.

[6] Robert W. Kates, *Risk Assessment of Environmental Hazard* (New York, 1978), p. 11.

[7] Ibid., p. 49.

poor countries where dysentery is rampant, yet Bryant speaks about the "pollution of food" (p. 227). Natural childbirth means higher infant mortality except where technology has reduced the general level of disease. To poor farmers throughout history, "nature" has meant floods or droughts, locusts or ill winds. Modern technology, in tempering these hazards, has given the devotees of antitechnology (or at least antimodern technology) the opportunity to pursue their own course. Rather than making each of us a mere "cog in a machine," modern technology (particularly when coupled with democratic political institutions and traditions) has allowed more diversity and freedom of life-style than ever before. But small-scale communities function insofar as people work together toward common goals. Choices are limited, so tastes must be similar.

Decentralization is another of Bryant's ideals. And it would be a worthy ideal—if valid. The irony is that our centralized, technologically sophisticated, democratic societies are functionally more decentralized than any others. Do-it-yourselfness is a function of the availability of modern technology in the home, and many of the do-it-yourselfers also benefit from the leisure afforded by modern technology.

We can seek to improve our technology and make it less hazardous; we can strengthen the democratic processes in the collective decisions that provide the framework for our range of choices; we can work to give more people access to all the benefits of modern technology. These goals are consistent with trends already operative in modern technology. There are those of us who like modern technology. If we unashamedly continue to work to improve it, then achieving our objectives increases the possibilities for people like Bryant of achieving theirs.

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